5 with Ferster

Day 1--Qualitative Statistics

The following set of problems is intended to reacquaint you with some of the problems from the pre-test that deal with analysis of 2 qualitative variables. Sounds impressive, doesn't it! ☺ Relax, take a few minutes, by yourself, or with a friend, and see what you can do with these.

**Use the following information for questions 1-4.**

Dr. F had 40 students in his math 109 classes last fall. These students study hard, and hope to one day be great teachers. The following 2 way table shows the breakdown by class time, and whether or not they received an A for their final course grade.

|  |  |  |  |
| --- | --- | --- | --- |
|  | 8:00 Class | 9:00 Class | TOTAL |
| Earned an A | 18 | 12 |  |
| Did not earn an A | 4 | 6 |  |
| TOTAL |  |  |  |

1. Complete the 2 way table by finding all totals.

2. Overall, what percentage of students earned an A?

3. Let a be the percentage of students in the 8:00 class who earned A's, let b be the percentage of students in the 9:00 class who earned A's, and let c be the percentage of students overall who earned A's. Which of the following statements is true?

A.  B. 

C.  D. 

4. Let x be the percentage of students who earned A's who were enrolled in the 8:00 class; let y be the percentage of students who did not earn A's who were enrolled in the 8:00 class, and let z be the overall percentage of students who were enrolled in the 8:00 class. Which of the following statements is true?

A.  B. 

C  D. 

5. The latest blood drive at Immaculata featured a contest between the junior class and the senior class. The class that contributed the greater number of units of blood was treated to a trip to Shady Maple (of course, Dr. F went along! ☺) The following table summarizes the data, along with specific blood type for each donor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Type A | Type B | Type AB | Type O | TOTAL |
| Junior | 7 | 5 | 5 | 9 |  |
| Senior | 1 | 6 | 8 | 6 |  |
| TOTAL |  |  |  |  |  |

A. Fill in the blanks on the table.

B. What percentage of the blood donors were Juniors?

C. What percentage of the blood donors had type AB blood?

D. Is the percentage of the type O blood donated higher in Juniors or Seniors? Show calculations for both percentages to justify your answer.

**An Extra Problem---Yea BONUS!!!**

6. Dr. F has been studying the effects of parents' smoking habits on their children. If parents smoke, are their children more likely to become smokers? What if only 1 parent smokes? Do children of non-smoking parents ever become smokers? All good questions, I presume. Below are the data that Dr. F. has compiled.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Student Smokes | Student Does Not Smoke | TOTAL |
| Both Parents Smoke | 400 | 1380 |  |
| One Parent Smokes | 416 | 1823 |  |
| Neither Parent Smokes | 188 | 1168 |  |
| TOTAL |  |  |  |

A. How many students do the data describe?

B. What percent of these students smoke?

C. What percent of students smoke among those with 2 smoking parents?

D. What percent of students smoke among those with 1 smoking parent?

E. What percent of students smoke among those with neither parent smoking?

F. Draw a bar graph that illustrates the results from parts C, D, and E.

G. According to Dr. F's research above, given that a student does not smoke, what is the probability that he/she came from a family where both parents smoke?

H. According to Dr. F's research above, given that a student smokes, what is the probability that he/she came from a family where neither parent smokes?

I. According to Dr. F's research above, given that a student smokes, what is the probability that he/she came from a family where at least one parent smokes?